

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

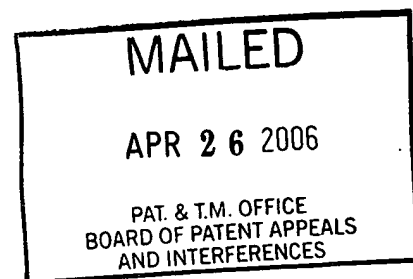
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

**Ex parte** ROOZBEH ATARIUS, TORSTEN J. CARLSSON, HAKAN B. ERIKSSON,  
KJELL B. GUSTAFSSON, TORGNY PALENIUS, and CHRISTER OSTBERG

Appeal No. 2005-2229  
Application No. 09/204,370

ON BRIEF



Before BARRETT, GROSS, and LEVY, **Administrative Patent Judges**.  
GROSS, **Administrative Patent Judge**.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 1 through 16, 18, 19, 21, 22, 24, 26, 27, 29, and 31, which are all of the claims pending in this application.

Appellants' invention relates to the configuration of a RAKE receiver in a radio communication system. Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. An apparatus for configuring a RAKE receiver with N fingers, the apparatus comprising:

a first stage, the first stage configured to use an input signal to find a set of more than N paths;

a second stage, the second stage configured to use the first set of more than N paths, the input signal and a quality of signal from the RAKE receiver to generate a set of N paths, the second stage generates the set of N paths more frequently than the first stage generates the set of more than N paths; and

a third stage, the third stage configured to use the set of N paths to configure the N fingers of the RAKE receiver.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Kubo et al. (Kubo)	6,456,827	Sep. 24, 2002 (Filed Jul. 28, 1998)
Daudelin	6,072,807	Jun. 06, 2000 (Filed Dec. 09, 1997)
Bruckert et al. (Bruckert)	5,987,012	Nov. 16, 1999 (Filed Dec. 19, 1996)
Kitaide <sup>1</sup>	JP 10-164011	Jun. 19, 1998

Claims 19 and 21 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kitaide in view of Daudelin.

Claims 1 through 10, 13 through 16, 18, 22, 24, 26, 27, 29, and 31 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kitaide in view of Daudelin and Kubo.

Claims 11 and 12 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kitaide in view of Daudelin, Kubo, and Bruckert.

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<sup>1</sup> We will refer to the machine-assisted translation by Thomson Derwent dated January 30, 2003.

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Reference is made to the Final Rejection (Paper No. 16, mailed August 26, 2003) and the Examiner's Answer (Paper No. 21, mailed April 2, 2004) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper No. 20, filed January 20, 2004) for appellants' arguments thereagainst.

#### **OPINION**

We have carefully considered the claims, the applied prior art references, and the respective positions articulated by appellants and the examiner. As a consequence of our review, we will reverse the obviousness rejections of claims 9, 14 through 16, 18, 19, 21, 22, 24, 26, 27, 29, and 31 but affirm the obviousness rejections of claims 1 through 8 and 10 through 13.

Regarding claims 19 and 21, the examiner asserts (Final Rejection, page 5) that Kitaide discloses in Figure 2 a RAKE receiver that includes an input signal, a searcher 200, and a selector made up of tracker 202, spreading code generator 203, searching process part 206, synthesis equipment 210 and path selection equipment 209. The examiner further contends that Kitaide discloses in paragraph 21 "using the input signal and the candidate paths to select a smaller set of candidate paths, where

the selector comprises  $k \times M$  correlators to generate  $M$  estimates, where  $K$  correlators are assigned to each of the selected paths." According to the examiner, the only limitation lacking from Kitaide is that the selector receives a quality signal from the RAKE receiver. The examiner turns to Daudelin for a teaching to use a quality signal from the RAKE receiver to select the smaller set of candidate paths.

Appellants argue (Brief, page 6) that Daudelin discloses that finger assignor uses the paths searched and the signal quality provided by the RAKE receiver to assign the fingers for tracking particular paths, not for selecting a smaller set of candidate paths. Appellants continue (Brief, page 7) that Daudelin's RAKE receiver provides a quality signal to a searcher (i.e., the finger assignor), and, thus, Daudelin fails to suggest providing a quality signal to a selector. We disagree. As explained by the examiner (Answer, page 4), "although finger assignor 404 [of Daudelin] includes a searcher element 411, the finger assignor also performs the function of assigning or selecting constituent paths to fingers of RAKE receiver 407 (col. 4, line 67 to col. 5, line 3)." Further, Daudelin states (column 3, lines 8-10) that a "rake receiver will offer the best performance when its fingers are, at every instant, demodulating

the best constituent signals." Therefore, it would have been obvious to include in Kitaide's selector Daudelin's quality signals received from the rake receiver for the best rake receiver performance.

Nonetheless, we cannot sustain the obviousness rejection of claims 19 and 21 because we find other limitations lacking from the combination of references. Specifically, we find nothing in paragraph 21 of Kitaide nor anywhere else in either reference that suggests that "the selector comprises  $k \times M$  correlators to generate  $M$  estimates, where  $K$  correlators are assigned to each of the selected paths," as indicated by the examiner. Therefore, we find that the examiner has failed to establish a ***prima facie*** case of obviousness, and we cannot sustain the obviousness rejection of claims 19 and 21.

For claims 1 through 7 and 13, the examiner stated (Final Rejection, page 6) that Kitaide does not disclose that the second stage uses a quality signal from the RAKE receiver nor that it generates the set of  $N$  paths more frequently than the first stage generates the set of more than  $N$  paths. The examiner applied Daudelin for the quality signal and added Kubo for a suggestion that the second stage generates paths more frequently than the first stage.

Appellants (Brief, pages 10-11) admit that Kitaide does, in fact, disclose that the second stage generates N paths more frequently than the first stage generates more than N paths. Thus, Kubo is merely cumulative. As to the quality signal, appellants argue (Brief, page 10) that Kitaide and Daudelin fail to disclose or suggest using a quality signal from the RAKE receiver. However, as discussed *supra*, we find that Daudelin does suggest using a quality signal from the RAKE receiver. Accordingly, we will sustain the obviousness rejection of claims 1 through 7 and 13.

Regarding claims 8 and 10, appellants (Brief, page 12) assert that Kitaide, Daudelin, and Kubo do not disclose or suggest the use of a matched filter to generate the more than N paths. Appellants state (Brief, page 12) that "merely because matched filters and correlators are allegedly well recognized art equivalents does not explain why one of ordinary skill in the art would have been motivated to modify Kita[i]de to use matched filters." Appellants continue (Brief, pages 12-13) that their application teaches away from the substitution by indicating that matched filters are "costly and computationally complex. It is not only time-consuming; it also decreases the battery life of hand-held units."

However, a matched filter appears to be a type of correlator since it generates correlation values (see, for example, Kubo, column 5, lines 58-60). As any type of correlator can be used for Kitaide's correlators, it would have been obvious to use a matched filter. Furthermore, as to appellants' argument that matched filters are costly, computationally complex, time-consuming, and harsh on battery life, such reasons do not explain why it wouldn't have been obvious from a technical standpoint to use a matched filter. "[T]he fact that the two disclosed apparatus would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the latter fact is telling one [sic] the issue of nonobviousness." ***Orthopedic Equip. Co. v. United States***, 702 F.2d 1005, 1013, 217 USPQ 193, 200 (Fed. Cir. 1983).

As to claim 9, the examiner (Answer, page 9) explains that

Kubo discloses . . . a searcher can be placed in an inactive mode . . . to prevent the search operation from being performed more than needed and conserve power consumed by the searcher. . . . The searcher is thus placed in an inactive mode, while the rest of the receiver continues to operate and demodulate the received signals. Since part of the operation of the "selector" of Kita[i]de includes the ability to not wait for the end of a searching process to provide a

new set of paths . . . it would have been fairly suggested . . . that while the searcher is placed in an inactive mode, the selector would continue to operate, providing new paths to the RAKE receiver as necessary.

However, in Kitaide, if the selector starts operating before the searching process ends, the searching process (or first stage) continues to be active, not inactive, while the selector (or second stage) generates a new set of N paths. Therefore, we cannot sustain the obviousness rejection of claim 9.

Claim 14 includes the same limitation that we found lacking from the combination of Kitaide, Daudelin, and Kubo (i.e., that the selector generates a new set of paths while the searcher is inactive). Thus, we cannot sustain the obviousness rejection of claim 14 for the same reasons explained *supra* with regard to claim 9. Similarly, since claims 15, 16, and 18 depend from claim 14, we likewise cannot sustain the rejection of claims 15, 16, and 18.

Regarding claims 22, 24, and 26, appellants contend (Brief, page 15) that none of the three references, Kitaide, Daudelin, and Kubo, discloses or suggests the step of updating the second set of paths without updating the first set of paths. Appellants assert (Brief, page 15) that the combination of the three references as proposed by the examiner would, at best, disclose



not updating the second set of paths until the expiration of a time period. We agree. We find nothing in any of the references that would suggest updating the second set of paths without updating the first set of paths (or rather while the first stage is inactive). Therefore, we cannot sustain the obviousness rejection of claims 22, 24, and 26.

Claims 27, 29, and 31 recite that the second set of paths is updated without updating the first set of paths, a limitation we found lacking from the combination of Kitaide, Daudelin, and Kubo. Accordingly, we cannot sustain the rejection of claims 27, 29, and 31 for the same reasons explained *supra* with regard to claims 22, 24, and 26.

Appellants' sole argument for claims 11 and 12 (Brief, page 18) is that "Bruckert does not overcome the above-identified deficiencies of the combination of Kita[i]de, Daudelin and Kubo with respect to claim 1." Since we found no error in the examiner's application of Kitaide, Daudelin, and Kubo against claim 1, and appellants have presented no arguments as to Bruckert and the additional limitations, we will sustain the obviousness rejection of claims 11 and 12.

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## CONCLUSION

The decision of the examiner rejecting claims 1 through 16, 18, 19, 21, 22, 24, 26, 27, 29, and 31 under 35 U.S.C. § 103 is reversed as to claims 9, 14 through 16, 18, 19, 21, 22, 24, 26, 27, 29, and 31 but affirmed as to claims 1 through 8 and 10 through 13. Accordingly, the examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

**AFFIRMED-IN-PART**

*Lee E. Barrett*  
LEE E. BARRETT  
Administrative Patent Judge

*Anita Pellman Gross*  
ANITA PELLMAN GROSS  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

*Stuart S. Levy*  
STUART S. LEVY  
Administrative Patent Judge

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